RAW SEQUENCE LISTING

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.

Application Serial Number: _09/937,665B_

Source: _1Fw/i6_

Date Processed by STIC: _12/15/05_

ENTERED

RAW SEQUENCE LISTING   DATE: 12/15/2005
PATENT APPLICATION: US/09/937,665B   TIME: 11:41:43

Input Set : **D:\J&J-1825.ST25.txt**
Output Set: **N:\CRF4\12152005\I937665B.raw**

```
 3 <110> APPLICANT: Kutchan, Toni M.
 4        Zenk, Meinhart H.
 5        Atkins, David G.
 6        Fist, Anthony J.
 8 <120> TITLE OF INVENTION: CODEINONE REDUCTASE FROM ALKALOID POPPY
10 <130> FILE REFERENCE: J&J-1825
12 <140> CURRENT APPLICATION NUMBER: US 09/937,665B
13 <141> CURRENT FILING DATE: 2002-02-20
15 <150> PRIOR APPLICATION NUMBER: PCT/AU00/00249
16 <151> PRIOR FILING DATE: 2000-03-24
18 <150> PRIOR APPLICATION NUMBER: AU PP 9463
19 <151> PRIOR FILING DATE: 1999-03-26
21 <160> NUMBER OF SEQ ID NOS: 29
23 <170> SOFTWARE: PatentIn version 3.3
25 <210> SEQ ID NO: 1
26 <211> LENGTH: 20
27 <212> TYPE: DNA
28 <213> ORGANISM: Artificial Sequence
30 <220> FEATURE:
31 <223> OTHER INFORMATION: PCR Primer
34 <220> FEATURE:
35 <221> NAME/KEY: misc_feature
36 <222> LOCATION: (3)..(3)
37 <223> OTHER INFORMATION: n = A or G
39 <220> FEATURE:
40 <221> NAME/KEY: misc_feature
41 <222> LOCATION: (6)..(6)
42 <223> OTHER INFORMATION: n = T or C
44 <220> FEATURE:
45 <221> NAME/KEY: misc_feature
46 <222> LOCATION: (9)..(9)
47 <223> OTHER INFORMATION: n = T or C
49 <220> FEATURE:
50 <221> NAME/KEY: misc_feature
51 <222> LOCATION: (12)..(12)
52 <223> OTHER INFORMATION: n = A or C or T
54 <220> FEATURE:
55 <221> NAME/KEY: misc_feature
56 <222> LOCATION: (15)..(15)
57 <223> OTHER INFORMATION: n = T or G
59 <220> FEATURE:
60 <221> NAME/KEY: misc_feature
61 <222> LOCATION: (18)..(18)
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P.6

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            RAW SEQUENCE LISTING           DATE: 12/15/2005
            PATENT APPLICATION:  US/09/937,665B     TIME: 11:41:43

            Input Set : D:\J&J-1825.ST25.txt
            Output Set: N:\CRF4\12152005\I937665B.raw
```

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    62 <223> OTHER INFORMATION: n = T or C
    64 <400> SEQUENCE: 1
W--> 65 ganctnttna tnacntcnaa                                              20
    68 <210> SEQ ID NO: 2
    69 <211> LENGTH: 26
    70 <212> TYPE: DNA
    71 <213> ORGANISM: Artificial Sequence
    73 <220> FEATURE:
    74 <223> OTHER INFORMATION: PCR Primer
    77 <220> FEATURE:
    78 <221> NAME/KEY: misc_feature
    79 <222> LOCATION: (3)..(3)
    80 <223> OTHER INFORMATION: n = T or C
    82 <220> FEATURE:
    83 <221> NAME/KEY: misc_feature
    84 <222> LOCATION: (6)..(6)
    85 <223> OTHER INFORMATION: n = i
    87 <220> FEATURE:
    88 <221> NAME/KEY: misc_feature
    89 <222> LOCATION: (8)..(8)
    90 <223> OTHER INFORMATION: n = T or G
    92 <220> FEATURE:
    93 <221> NAME/KEY: misc_feature
    94 <222> LOCATION: (9)..(9)
    95 <223> OTHER INFORMATION: n = T or A
    97 <220> FEATURE:
    98 <221> NAME/KEY: misc_feature
    99 <222> LOCATION: (12)..(12)
   100 <223> OTHER INFORMATION: n = i
   102 <220> FEATURE:
   103 <221> NAME/KEY: misc_feature
   104 <222> LOCATION: (24)..(24)
   105 <223> OTHER INFORMATION: n = G or A
   107 <400> SEQUENCE: 2
W--> 108 ttnccncnng cnactgcaat ctgntg                                      26
   111 <210> SEQ ID NO: 3
   112 <211> LENGTH: 21
   113 <212> TYPE: DNA
   114 <213> ORGANISM: Artificial Sequence
   116 <220> FEATURE:
   117 <223> OTHER INFORMATION: PCR Primer
   120 <220> FEATURE:
   121 <221> NAME/KEY: misc_feature
   122 <222> LOCATION: (4)..(4)
   123 <223> OTHER INFORMATION: n = T or C
   125 <220> FEATURE:
   126 <221> NAME/KEY: misc_feature
   127 <222> LOCATION: (10)..(10)
   128 <223> OTHER INFORMATION: n = T or C
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Input Set : D:\J&J-1825.ST25.txt
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        130 <220> FEATURE:
        131 <221> NAME/KEY: misc_feature
        132 <222> LOCATION: (16)..(16)
        133 <223> OTHER INFORMATION: n = C or G
        135 <220> FEATURE:
        136 <221> NAME/KEY: misc_feature
        137 <222> LOCATION: (19)..(19)
        138 <223> OTHER INFORMATION: n = i
        140 <400> SEQUENCE: 3
W-->    141 catntccacn tgattnacna c                              21
        144 <210> SEQ ID NO: 4
        145 <211> LENGTH: 29
        146 <212> TYPE: DNA
        147 <213> ORGANISM: Artificial Sequence
        149 <220> FEATURE:
        150 <223> OTHER INFORMATION: PCR primer
        153 <220> FEATURE:
        154 <221> NAME/KEY: misc_feature
        155 <222> LOCATION: (3)..(3)
        156 <223> OTHER INFORMATION: n = i
        158 <220> FEATURE:
        159 <221> NAME/KEY: misc_feature
        160 <222> LOCATION: (6)..(6)
        161 <223> OTHER INFORMATION: n = i
        163 <220> FEATURE:
        164 <221> NAME/KEY: misc_feature
        165 <222> LOCATION: (9)..(9)
        166 <223> OTHER INFORMATION: n = C or T
        168 <220> FEATURE:
        169 <221> NAME/KEY: misc_feature
        170 <222> LOCATION: (12)..(12)
        171 <223> OTHER INFORMATION: n = A or G
        173 <220> FEATURE:
        174 <221> NAME/KEY: misc_feature
        175 <222> LOCATION: (15)..(15)
        176 <223> OTHER INFORMATION: n = i
        178 <220> FEATURE:
        179 <221> NAME/KEY: misc_feature
        180 <222> LOCATION: (18)..(18)
        181 <223> OTHER INFORMATION: n = A or G
        183 <220> FEATURE:
        184 <221> NAME/KEY: misc_feature
        185 <222> LOCATION: (22)..(22)
        186 <223> OTHER INFORMATION: n = A or T
        188 <220> FEATURE:
        189 <221> NAME/KEY: misc_feature
        190 <222> LOCATION: (23)..(23)
        191 <223> OTHER INFORMATION: n = G or C
        193 <220> FEATURE:
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PATENT APPLICATION: US/09/937,665B   TIME: 11:41:43

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Output Set: N:\CRF4\12152005\I937665B.raw

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     194 <221> NAME/KEY: misc_feature
     195 <222> LOCATION: (24)..(24)
     196 <223> OTHER INFORMATION: n = i
     198 <220> FEATURE:
     199 <221> NAME/KEY: misc_feature
     200 <222> LOCATION: (27)..(27)
     201 <223> OTHER INFORMATION: n = i
     203 <400> SEQUENCE: 4
W--> 204 gtngtnaanc angtnganat gnnnccnac                         29
     207 <210> SEQ ID NO: 5
     208 <211> LENGTH: 21
     209 <212> TYPE: DNA
     210 <213> ORGANISM: Artificial Sequence
     212 <220> FEATURE:
     213 <223> OTHER INFORMATION: PCR primer
     215 <400> SEQUENCE: 5
     216 atggagagta atggtgtacc t                                 21
     219 <210> SEQ ID NO: 6
     220 <211> LENGTH: 21
     221 <212> TYPE: DNA
     222 <213> ORGANISM: Artificial Sequence
     224 <220> FEATURE:
     225 <223> OTHER INFORMATION: PCR primer
     227 <400> SEQUENCE: 6
     228 gacagtcctc acttaccatc t                                 21
     231 <210> SEQ ID NO: 7
     232 <211> LENGTH: 33
     233 <212> TYPE: DNA
     234 <213> ORGANISM: Artificial Sequence
     236 <220> FEATURE:
     237 <223> OTHER INFORMATION: Primer
     239 <400> SEQUENCE: 7
     240 atggctagca tggagagtaa tggtgtacct atg                    33
     243 <210> SEQ ID NO: 8
     244 <211> LENGTH: 33
     245 <212> TYPE: DNA
     246 <213> ORGANISM: Artificial Sequence
     248 <220> FEATURE:
     249 <223> OTHER INFORMATION: Primer
     251 <400> SEQUENCE: 8
     252 aagggatcca tccttctcat cccagaactc ttc                    33
     255 <210> SEQ ID NO: 9
     256 <211> LENGTH: 7
     257 <212> TYPE: PRT
     258 <213> ORGANISM: Artificial Sequence
     260 <220> FEATURE:
     261 <223> OTHER INFORMATION: Synthetic Construct
     264 <220> FEATURE:
     265 <221> NAME/KEY: misc_feature
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PATENT APPLICATION: US/09/937,665B   TIME: 11:41:43

Input Set : D:\J&J-1825.ST25.txt
Output Set: N:\CRF4\12152005\I937665B.raw

```
       266 <222> LOCATION: (1)..(1)
       267 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
       269 <400> SEQUENCE: 9
W--> 271 Xaa Leu Gln Glu Leu Met Ala
       272 1               5
       275 <210> SEQ ID NO: 10
       276 <211> LENGTH: 11
       277 <212> TYPE: PRT
       278 <213> ORGANISM: Artificial Sequence
       280 <220> FEATURE:
       281 <223> OTHER INFORMATION: Synthetic Construct
       283 <400> SEQUENCE: 10
       285 Val Leu His Gln Ile Ala Val Ala Arg Gly Lys
       286 1               5                   10
       289 <210> SEQ ID NO: 11
       290 <211> LENGTH: 10
       291 <212> TYPE: PRT
       292 <213> ORGANISM: Artificial Sequence
       294 <220> FEATURE:
       295 <223> OTHER INFORMATION: Synthetic Construct
       297 <400> SEQUENCE: 11
       299 Asp Asp Asp Glu Leu Phe Ile Thr Ser Lys
       300 1               5                   10
       303 <210> SEQ ID NO: 12
       304 <211> LENGTH: 16
       305 <212> TYPE: PRT
       306 <213> ORGANISM: Artificial Sequence
       308 <220> FEATURE:
       309 <223> OTHER INFORMATION: Synthetic Construct
       311 <400> SEQUENCE: 12
       313 Ile Pro Asp Val Val Asn Gln Val Glu Met Ser Pro Thr Leu Gly Gln
       314 1               5                   10                  15
       317 <210> SEQ ID NO: 13
       318 <211> LENGTH: 7
       319 <212> TYPE: PRT
       320 <213> ORGANISM: Artificial Sequence
       322 <220> FEATURE:
       323 <223> OTHER INFORMATION: Synthetic Construct
       326 <220> FEATURE:
       327 <221> NAME/KEY: misc_feature
       328 <222> LOCATION: (1)..(1)
       329 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
       331 <400> SEQUENCE: 13
W--> 333 Xaa Val Asn Glu Ile Pro Lys
       334 1               5
       337 <210> SEQ ID NO: 14
       338 <211> LENGTH: 5
       339 <212> TYPE: PRT
       340 <213> ORGANISM: Artificial Sequence
```

RAW SEQUENCE LISTING ERROR SUMMARY   DATE: 12/15/2005
PATENT APPLICATION: US/09/937,665B   TIME: 11:41:44

Input Set : D:\J&J-1825.ST25.txt
Output Set: N:\CRF4\12152005\I937665B.raw

Please Note:
Use of n and/or Xaa have been detected in the Sequence Listing. Please review the
Sequence Listing to ensure that a corresponding explanation is presented in the <220>
to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:1; N Pos. 3,6,9,12,15,18
Seq#:2; N Pos. 3,6,8,9,12,24
Seq#:3; N Pos. 4,10,16,19
Seq#:4; N Pos. 3,6,9,12,15,18,22,23,24,27
Seq#:9; Xaa Pos. 1
Seq#:13; Xaa Pos. 1
Seq#:14; Xaa Pos. 1
Seq#:15; Xaa Pos. 5

VERIFICATION SUMMARY   DATE: 12/15/2005
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Input Set : **D:\J&J-1825.ST25.txt**
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```
L:65  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1 after pos.:0
L:108 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2 after pos.:0
L:141 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3 after pos.:0
L:204 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4 after pos.:0
L:271 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9 after pos.:0
L:333 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:13 after pos.:0
L:353 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:14 after pos.:0
L:373 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:15 after pos.:0
```